

Q.5

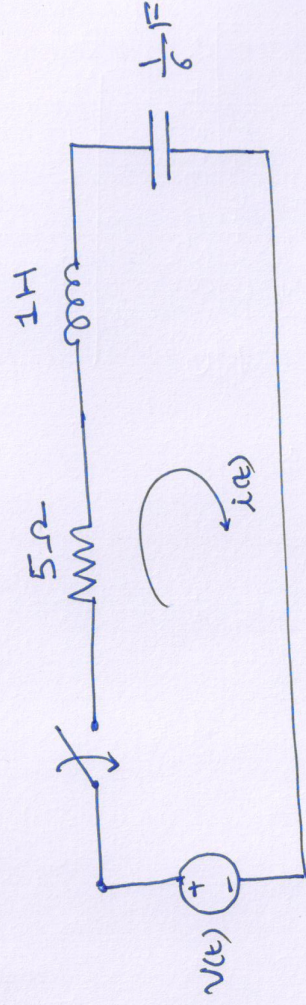
For the network shown below, determine the current $i(t)$ when the switch is closed at $t=0$ with zero initial conditions; for

1) $v(t) = 5\delta(t-1) \rightarrow i(t) = \frac{5}{6}u(t-1) + \frac{5}{3}e^{-3(4-t-1)}u(t-1)$

2) $v(t) = \sin t \rightarrow -\frac{5}{2}e^{-2(t-1)}u(t-1)$

for $t > 0$

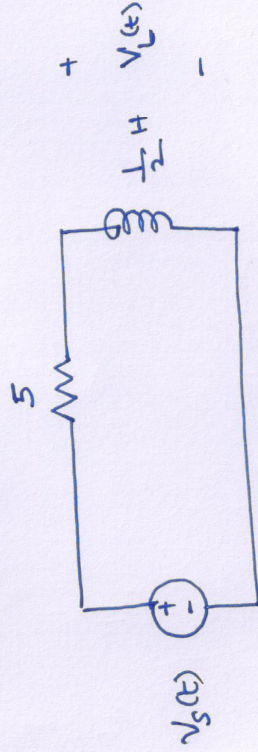
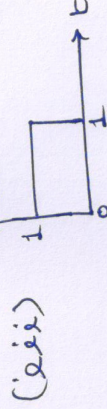
3) $v(t) = 6e^{-2t}$



Q.6 Find the impulse response of the voltage across the inductor

when (i) $v_s(t) = \delta(t)$

(ii) $v_s(t) = e^{-t}u(t)$



i) $v_L(t) = \delta(t) - 10e^{-10t}u(t)$

ii) $v_L(t) = \left(\frac{10}{9}e^{-10t} - \frac{1}{9}e^{-t}\right)u(t)$